

**Montana Board of Oil and Gas Conservation
Environmental Assessment**

Operator: Endeavour Operating Corporation
Well Name/Number: Cherry Creek Sheep 34-14-37 #1
Location: NW NE Section 34 T14N R37E
County: Garfield, **MT; Field (or Wildcat)** W/C

Air Quality

(possible concerns)

Long drilling time: No, 10 to 15 days drilling time.

Unusually deep drilling (high horsepower rig): No, a double drilling rig to drill to 5,480' TD Otter Formation vertical well test.

Possible H2S gas production: Slight H2S possible.

In/near Class I air quality area: No class I air quality area.

Air quality permit for flaring/venting (if productive) Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☐ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other:

Comments: No special concerns – using double drilling rig to drill to 5,480' TD

Water Quality

(possible concerns)

Salt/oil based mud: No, surface hole will be drilled with freshwater. Main hole will be drilled with freshwater and freshwater drilling mud.

High water table: No high water table in the area of review.

Surface drainage leads to live water: No, closest drainage is an unnamed ephemeral tributary drainage to Little Dry Creek, also an ephemeral drainage, about 1/4 of a mile to the north from this location.

Water well contamination: No water well within 1 mile and further from this location.

This well will drill and set 9 5/8" surface casing to 4000' and cement to surface. Well will be drill with freshwater based drilling fluids from base of surface casing to 5,480' TD, into the Otter Formation.

Porous/permeable soils: No, silty "Gumbo" clay soils.

Class I stream drainage: No Class I stream drainages.

Mitigation:

☒ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

☐ Closed mud system

☐ Off-site disposal of solids/liquids (in approved facility)

☐ Other:

Comments: Freshwater mud system to be used on surface hole. Freshwater mud system to be used out from under surface casing to 5,480'. Fluids will be

evaporated in the lined reserve pit. Pit will be backfilled with at least 4' of cover. No concerns.

Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: No live water stream crossings. Crossing only ephemeral drainages.

High erosion potential: No, moderate cut, up to 15.4' and moderate fill, up to 13.5', required.

Loss of soil productivity: No, location will be restored after drilling, if nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: No, a large location, 300X550' size required.

Damage to improvements: Slight, surface use is grass range land.

Conflict with existing land use/values: Slight

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☒ Other Requires DEQ General Permit for Storm Water Discharge Associated with Construction Activity, under ARM 17.30.1102(28).

Comments: Access will be from existing county road, Ingomar Road, About 127' new road will be constructed into this location. Freshwater drill cuttings and mud solids will be buried in the lined pit. Lined pit will backfilled with 4' of cover when dry. Drilling fluids will be evaporated. No concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: No residences within 1 mile of this location.

Possibility of H₂S: Yes, possible.

Size of rig/length of drilling time: Double derrick drilling rig, about 10 to 15 days drilling time.

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☐ H₂S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Operational BOP and adequate surface casing should mitigate any problems. No concerns.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None identified.

Proximity to recreation sites: None identified.

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No

Threatened or endangered Species: Threatened or endangered species identified in this county are the Pallid Sturgeon, Piping Plover, Interior Least Tern and the Black Footed Ferret. Candidate species is the Greater Sage Grouse and Sprague's Pipit. NH tracker website lists the following "Species of Concern" in T14N R37E: Greater Sage Grouse and Greater Short Horned Lizard.

Mitigation:

- ☐ Avoidance (topographic tolerance/exception)
- ☐ Other agency review (DFWP, federal agencies, DSL)
- ☐ Screening/fencing of pits, drillsite
- ☐ Other: _____

Comments: Private surface grazing land. No live water nearby. There maybe species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern is discovered at this location. The Board of Oil & Gas has no jurisdiction over private surface lands.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites None identified.

Mitigation

- ☐ avoidance (topographic tolerance, location exception)
- ☐ other agency review (SHPO, DSL, federal agencies)
- ☐ Other: _____

Comments: Private surface grazing land. There maybe possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite. The Board of Oil & Gas has no jurisdiction over private surface lands.

Social/Economic

(possible concerns)

- ☐ Substantial effect on tax base
- ☐ Create demand for new governmental services
- ☐ Population increase or relocation

Comments: Well is a wildcat, until production is established, no social or economic impact can be assessed.

Remarks or Special Concerns for this site

Well is a wildcat 5,480' TD Otter Formation vertical well test.

Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term impacts will occur.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the

human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki
(title:) Chief Field Inspector
Date: August 26, 2011

Other Persons Contacted:

Montana Bureau of Mines and Geology GWIC website

(Name and Agency)
Garfield County water wells
(subject discussed)
August 26, 2011
(date)

US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES
MONTANA COUNTIES, Garfield County
(subject discussed)

August 26, 2011
(date)

Montana Natural Heritage Program Website (FWP)
(Name and Agency)
Heritage State Rank= S1, S2, S3, T14N R37E
(subject discussed)

August 26, 2011
(date)

(Name and Agency)

(subject discussed)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____